Textbook Alignment to the Utah Core – 4th Grade Science

This alignment has been completed using an "Independent Alignment Vendor" from the USOE approved list (**www.schools.utah.gov/curr/imc/indvendor.html**.) Yes _____ No __X___

Name of Company and Individual Conducting Alignment: <u>Independent Contractor, Shannon R. Gale</u>

A "Credential Sheet" has been completed on the above company/evaluator and is (Please check one of the following):

☐ **On record with the USOE.**

<u>X</u> **The "Credential Sheet" is attached to this alignment.**

Instructional Materials Evaluation Criteria (name and grade of the core document used to align): Grade 4 Science

Title: HSP Science   **ISBN#: 9780153609404; 9780153609619**

Publisher: _____ *Harcourt School Publishers* _____

Overall percentage of coverage in the *Student Edition (SE) and Teacher Edition (TE)* of the Utah State Core Curriculum: _____**79.3**____ **%**

Overall percentage of coverage in *ancillary material*s of the Utah Core Curriculum: _____**67.2**_____ **%**

STANDARD I: **Students will understand that water changes state as it moves through the water cycle.**

Percentage of coverage in the *student and teacher edition* for Standard I:_____89_____ %

Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard I: ____0_____ %

OBJECTIVES & INDICATORS	Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)	Coverage in *Ancillary Material* (titles, pg #'s, etc.)	*Not covered in TE, SE or ancillaries* ✔
Objective 1.1: Describe the relationship between heat energy, evaporation and condensation of water on Earth.			
a. Identify the relative amount and kind of water found in various locations on Earth (e.g., oceans have most of the water, glaciers and snowfields contain most fresh water).	D 360, 362, 369		
b. Identify the sun as the source of energy that evaporates water from the surface of Earth.	D 364–367	RS 62–63 BL Book 9 OL Book 9	
c. Compare the processes of evaporation and condensation of water.	D 364–367 E 466–467, 506–507	LM 135–136 RS 6263, 81–82 ESL 112–115 BL Books 9, 11 OL Books 9, 12	
d. Investigate and record temperature data to show the effects of heat energy on changing the states of water.			✔
Objective 1.2: Describe the water cycle.			
a. Locate examples of evaporation and condensation in the water cycle (e.g., water evaporates when heated and clouds or dew forms when vapor is cooled).	D 358–359, 360–367, 374	RS 62–63 ESL 112–115 BL Book 9 OL Book 9	
b. Describe the processes of evaporation, condensation, and precipitation as	D 358–359, 360–	RS 62–63	

			367, 374	ESL 112–115 BL Book 9 OL Book 9	
c.	Identify locations that hold water as it passes through the water cycle (e.g., oceans, atmosphere, fresh surface water, snow, ice, and ground water).	D	358–359, 360, 362–367	RS 62–63 ESL 112–115 BL Book 9 OL Book 9	
d.	Construct a model or diagram to show how water continuously moves through the water cycle over time.	D	358, 366		
e.	Describe how the water cycle relates to the water supply in your community.	B D	226, 228–229 368	BL Book 5 OL Book 5	

STANDARD II: Students will understand that the elements of weather can be observed, measured, and recorded to make predictions and determine simple weather patterns.

Percentage of coverage in the *student and teacher edition* for Standard II:_____75_____ %	Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard II:____0____%		
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	*Not covered in TE, SE or ancillaries* ✔
Objective 2.1: Observe, measure, and record the basic elements of weather.			
a. Identify basic cloud types (i.e., cumulus, cirrus, stratus clouds).	D 394–395	BL Book 9 OL Book 9	
b. Observe, measure, and record data on the basic elements of weather over a period of time (i.e., precipitation, air temperature, wind speed and direction, and air pressure).	D 370, 388, 390–391, 398	LM 116–118	
c. Investigate evidence that air is a substance (e.g., takes up space, moves as wind, temperature can be measured).	D 376–377, 385, 390–391, 392–394, 398 E 458, 469, 488, 495	RS 64–65, 68–69, 86 ESL 144–147 BL Book 9 OL Book 9	
d. Compare the components of severe weather phenomena to normal weather conditions (e.g., thunderstorm with lightning and high winds compared to rainstorm with rain showers and breezes).	D 374–378, 384–386, 392–395, 400–401	RS 64–69 ESL 116–127 BL Book 9 OL Book 9 AL Book 9	

Objective 2.2: Interpret recorded weather data for simple patterns.				
a.	Observe and record effects of air temperature on precipitation (e.g., below freezing results in snow, above freezing results in rain).	D 379, 388		
b.	Graph recorded data to show daily and seasonal patterns in weather.			✔
c.	Infer relationships between wind and weather change (e.g., windy days often precede changes in the weather; south winds in Utah often precede a cold front coming from the north)			✔
Objective 2.3: Evaluate weather predictions based upon observational data.				
a.	Identify and use the tools of a meteorologist (e.g., measure rainfall using rain gauge, measure air pressure using barometer, measure temperature using a thermometer).	D 382–383, 390–391, 398	LM 113–115, 116–118 RS 68–69 BL Book 9 OL Book 9	
b.	Describe how weather and forecasts affect people's lives.	D 378, 388, 397	BL Book 9	
c.	Predict weather and justify prediction with observable evidence.	D 388, 395		
d.	Evaluate the accuracy of student and professional weather forecasts.	D 388, 399		
e.	Relate weather forecast accuracy to evidence or tools used to make the forecast (e.g., feels like rain vs. barometer is dropping).			✔

STANDARD III: Students will understand the basic properties of rocks, the processes involved in the formation of soils, and the needs of plants provided by soil.

Percentage of coverage in the *student and teacher edition* for Standard III:_____77_____ %		Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard III:___8___ %		
OBJECTIVES & INDICATORS		*Coverage in Student Edition(SE) and Teacher Edition (TE) (pg #'s, etc.)*	*Coverage in Ancillary Material (titles, pg #'s, etc.)*	*Not covered in TE, SE or ancillaries* ✔
Objective 3.1: Identify basic properties of minerals and rocks.				
a.	Describe the differences between minerals and rocks.	C 276–277, 280–284	RS 45–46 ESL 80–83 BL Book 7 OL Book 7	
b.	Observe rocks using a magnifying glass and draw shapes and colors of the minerals.	C 274, 278–279	LM 82–83	
c.	Sort rocks by appearance according to the three basic types: sedimentary, igneous and metamorphic (e.g., sedimentary–rounded-appearing mineral and rock particles that are cemented together, often in layers; igneous–with or without observable crystals that are not in layers or with or without air holes or glasslike; metamorphic –crystals/minerals, often in layers).			✔
d.	Classify common rocks found in Utah as sedimentary (i.e., sandstone, conglomerate, shale), igneous (i.e., basalt, granite, obsidian, pumice) and metamorphic (i.e., marble, gneiss, schist).		OL Book 7	

Objective 3.2: Explain how the processes of weathering and erosion change and move materials that become soil.					
	a.	Identify the processes of physical weathering that break down rocks at Earth's surface (i.e., water movement, freezing, plant growth, wind).	C	294–302, 303, 314–315	RS 49–50 ESL 102–105 BL Book 7 OL Book 7	
	b.	Distinguish between weathering (i.e., wearing down and breaking of rock surfaces) and erosion (i.e., the movement of materials).	C	294–302	RS 49–50 ESL 102–105 BL Book 7 OL Book 7	
	c.	Model erosion of Earth materials and collection of these materials as part of the process that leads to soil (e.g., water moving sand in a playground area and depositing this sand in another area).	B C	222–223 296–297, 301, 311	LM 69–71	
	d.	Investigate layers of soil in the local area and predict the sources of the sand and rocks in the soil.	C	304, 310, 311	BL Book 7	
Objective 3.3: Observe the basic components of soil and relate the components to plant growth.					
	a.	Observe and list the components of soil (i.e., minerals, rocks, air, water, living and dead organisms) and distinguish between the living, nonliving, and once living components of soil.	C	308–312	BL Book 7 OL Book 7	
	b.	Diagram or model a soil profile showing topsoil, subsoil, and bedrock, and how the layers differ in composition.				✔
	c.	Relate the components of soils to the growth of plants in soil (e.g., mineral nutrients, water).	C	312	BL Book 7 OL Book 7	
	d.	Explain how plants may help control the erosion of soil.	B	220, 222		
	e.	Research and investigate ways to provide mineral nutrients for plants to grow without soil (e.g., grow plants in wet towels, grow plants in wet gravel, grow plants in water).				✔

STANDARD IV: Students will understand how fossils are formed, where they may be found in Utah, and how they can be used to make inferences.

Percentage of coverage in the *student and teacher edition* for Standard IV:_____71_____ %	Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard IV:____0___%

OBJECTIVES & INDICATORS	Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)	Coverage in *Ancillary Material* (titles, pg #'s, etc.)	*Not covered in TE, SE or ancillaries* ✔
Objective 4.1: Describe Utah fossils and explain how they were formed.			
a. Identify features of fossils that can be used to compare them to living organisms that are familiar (e.g., shape, size and structure of skeleton, patterns of leaves).	A 152–155, 157 C 351	RS 23–24 ESL 40–43 BL Book 3	
b. Describe three ways fossils are formed in sedimentary rock (i.e., preserved organisms, mineral replacement of organisms, impressions or tracks).	A 153 C 346–347	BL Book 8 OL Book 8	
c. Research locations where fossils are found in Utah and construct a simple fossil map.	A 157 C 342, 351		
Objective 4.2: 2: Explain how fossils can be used to make inferences about past life, climate, geology, and environments.			
a. Explain why fossils are usually found in sedimentary rock.	C 346		
b. Based on the fossils found in various locations, infer how Utah environments have changed over time (e.g., trilobite fossils indicate that Millard County was once covered by a large shallow ocean; dinosaur fossils and coal indicate that Emery and Uintah County were once tropical and swampy).	A 157		
c. Research information on two scientific explanations for the			✔

					✔
	extinction of dinosaurs and other prehistoric organisms.				
d.	Formulate questions that can be answered using information gathered on the extinction of dinosaurs.				✔

STANDARD V: Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.

Percentage of coverage in the *student and teacher edition* for Standard V:_____82_____ %	**Percentage of coverage not in student or teacher edition, but covered in the *ancillary material* for Standard V:__0___ %**		
OBJECTIVES & INDICATORS	**Coverage in *Student Edition(SE) and Teacher Edition (TE)* (pg #'s, etc.)**	**Coverage in *Ancillary Material* (titles, pg #'s, etc.)**	***Not covered in TE, SE or ancillaries*** ✔
Objective 5.1: Describe the physical characteristics of Utah's wetlands, forests, and deserts.			
a. Compare the physical characteristics (e.g., precipitation, temperature, and surface terrain) of Utah's wetlands, forests, and deserts.	B 203, 207, 215 216–217, 219	BL Book 5	
b. Describe Utah's wetlands (e.g., river, lake, stream, and marsh areas where water is a major feature of the environment) forests (e.g., oak, pine, aspen, juniper areas where trees are a major feature of the environment), and deserts (e.g., areas where the lack of water provided an environment where plants needing little water are a major feature of the environment).	B 203, 207, 215 216–217, 219		
c. Locate examples of areas that have characteristics of wetlands, forests, or deserts in Utah.	B 217, 219		
d. Based upon information gathered, classify areas of Utah that are generally identified as wetlands, forests, or deserts.	B 217		
e. Create models of wetlands, forests, and deserts			✔
Objective 5.2: Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.			

a.	Identify common plants and animals that inhabit Utah's forests, wetlands, and deserts.	B	252–253	ESL 56–59	
b.	Cite examples of physical features that allow particular plants and animals to live in specific environments (e.g., duck has webbed feet, cactus has waxy coating).	A	126–133	LM 44–46 RS 19–20 ESL 32–35 BL Book 3 OL Book 3	
c.	Describe some of the interactions between animals and plants of a given environment (e.g., woodpecker eats insects that live on trees of a forest, brine shrimp of the Great Salt Lake eat algae and birds feed on brine shrimp).	B	212–213, 236–239, 242–246, 248–259	RS 39–42 ESL 70–77 BL Books 5, 6 OL Book 6	
d.	Identify the effect elevation has on types of plants and animals that live in a specific wetland, forest, or desert.				✔
e.	Find examples of endangered Utah plants and animals and describe steps being taken to protect them.				✔
Objective 5.3: Use a simple scheme to classify Utah plants and animals.					
a.	Explain how scientists use classification schemes.	A	54–55, 58–60, 66–70, 74, 76–80	RS 5–10 ESL 2–6, 8–15 BL Book 1 OL Book 1 AL Book 1	
b.	Use a simple classification system to classify unfamiliar Utah plants or animals (e.g., fish/amphibians/reptile/bird/mammal, invertebrate/vertebrate, tree/shrub/grass, deciduous/conifers).	A	50, 77, 78, 81	BL Book 1 OL Book 1 AL Book 1	

Objective 5.4: Objective 4: Observe and record the behavior of Utah animals.		
a. Observe and record the behavior of birds (e.g., caring for young, obtaining food, surviving winter).	A 128, 129, 131, 133, 144–145	ESL 32–35 BL Book 3
b. Describe how the behavior and adaptations of Utah mammals help them survive winter (e.g., obtaining food, building homes, hibernation, migration).	A 133, 138, 140, 143, 144–145	RS 19–22 ESL 36–39 BL Book 3
c. Research and report on the behavior of a species of Utah fish (e.g., feeding on the bottom or surface, time of year and movement of fish to spawn, types of food and how it is obtained).	A 140–141, 143	LM 47–48
d. Compare the structure and behavior of Utah amphibians and reptiles.	A 77, 115, 116, 118	BL Book 1 OL Book 1
e. Use simple classification schemes to sort Utah's common insects and spiders.	A 78–79, 80	BL Book 1